

CLAIMS:

1. An electronic device workpiece processing apparatus comprising:

a workpiece holder adapted to receive an electronic device workpiece having an electrical coupling, the workpiece holder including an electrical coupling configured to electrically couple with the electrical coupling of the electronic device workpiece and communicate signals between the electronic device workpiece and the workpiece holder.

2. The electronic device workpiece processing apparatus according to claim 1 further comprising a data gathering device coupled with the electrical coupling of the workpiece holder and configured to receive the signals.

3. The electronic device workpiece processing apparatus according to claim 2 further comprising a contact plate configured to communicate the signal intermediate the workpiece holder and the data gathering device.

4. The electronic device workpiece processing apparatus according to claim 1 wherein the workpiece holder includes a first surface, a second surface, and an electrical interconnect configured to electrically couple the first surface and the second surface.

1 5. The electronic device workpiece processing apparatus
2 according to claim 4 wherein the first surface of the workpiece holder
3 is configured to face a received electronic device workpiece and the
4 second surface is configured to face a chuck.

5
6 6. The electronic device workpiece processing apparatus
7 according to claim 1 wherein the workpiece holder includes a plurality
8 of electrical couplings adapted to couple with a plurality of electrical
9 couplings of the electronic device workpiece.

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11 7. The electronic device workpiece processing apparatus
12 according to claim 1 wherein the workpiece holder comprises a chuck.

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14 8. The electronic device workpiece processing apparatus
15 according to claim 1 wherein the workpiece holder comprises a chuck
16 configured to receive a calibration workpiece and a production
17 workpiece.

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19 9. The electronic device workpiece processing apparatus
20 according to claim 8 wherein the workpiece holder and the calibration
21 workpiece include vacuum chambers adapted to receive a vacuum to
22 couple the calibration workpiece and the production workpiece with the
23 chuck.
24

1 10. The electronic device workpiece -processing apparatus
2 according to claim 1 wherein the workpiece holder comprises an
3 intermediate member adapted to couple with a chuck.

4
5 11. The electronic device workpiece processing apparatus
6 according to claim 1 wherein the workpiece holder includes a vacuum
7 chamber adapted to receive a vacuum to couple a received electronic
8 device workpiece with the workpiece holder.

9
10 12. The electronic device workpiece processing apparatus
11 according to claim 1 wherein the electrical interconnect comprises a
12 conductive column configured to extend outward from plural surfaces of
13 the chuck.

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15 13. The electronic device workpiece processing apparatus
16 according to claim 12 further comprising a contact plate including
17 circuitry configured to provide electrical connection with the conductive
18 column.

1 14. An electronic device workpiece processing intermediate
2 member adapted to receive an electronic device workpiece having an
3 electrical coupling and couple with a chuck having an electrical coupling,
4 the intermediate member comprising:

5 an electrical interconnect configured to electrically connect the
6 electrical coupling of the electronic device workpiece with the electrical
7 coupling of the chuck.

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9 15. The electronic device workpiece processing intermediate
10 member according to claim 14 wherein the intermediate member includes
11 a plurality of electrical interconnects configured to electrically connect
12 a plurality of electrical couplings of an electronic device workpiece and
13 a chuck.

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15 16. The electronic device workpiece processing intermediate
16 member according to claim 14 wherein the electrical interconnect
17 comprises a pogo pin.

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19 17. The electronic device workpiece processing intermediate
20 member according to claim 14 wherein the electrical interconnect
21 comprises a wire.
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1 18. An electronic device workpiece processing apparatus
2 comprising a workpiece holder adapted to receive an electronic device
3 workpiece and the workpiece holder having circuitry configured to
4 communicate a process signal received from a received electronic device
5 workpiece and the process signal containing information regarding
6 processing of the received electronic device workpiece.

7
8 19. An electronic device workpiece processing apparatus
9 comprising:

10 a chuck including a surface, an electrical coupling adjacent the
11 surface, and electrical interconnect configured to connect with the
12 electrical coupling of the chuck and conduct a signal within the chuck;

13 an intermediate member having a first surface and a second
14 surface and the intermediate member including:

15 an electrical coupling adjacent the first surface and
16 configured to couple with the electrical coupling of the chuck;

17 an electrical coupling adjacent the second surface; and

18 an electrical interconnect configured to connect the electrical
19 coupling adjacent the first surface and the electrical coupling adjacent
20 the second surface; and

21 an electronic device workpiece configured to couple with the
22 second surface of the intermediate member, the electronic device
23 workpiece including a sensor and an electrical coupling configured to
24

1 provide electrical connection of the sensor with the electrical coupling
2 of the second surface of the intermediate member.

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4 20. The electronic device workpiece processing apparatus
5 according to claim 19 further comprising a data gathering device coupled
6 with the electrical coupling of the chuck and configured to receive the
7 signal.

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9 21. The electronic device workpiece processing apparatus
10 according to claim 20 further comprising a contact plate configured to
11 communicate the signal intermediate the chuck and the data gathering
12 device.

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14 22. The electronic device workpiece processing apparatus
15 according to claim 19 wherein the sensor comprises a resistance
16 temperature device.

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18 23. The electronic device workpiece processing apparatus
19 according to claim 19 wherein the electronic device workpiece comprises
20 a calibration workpiece.
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1 24. The electronic device workpiece -processing apparatus
2 according to claim 19 wherein the electrical interconnect comprises a
3 conductive column configured to extend outward from plural surfaces of
4 the chuck.

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6 25. The electronic device workpiece processing apparatus
7 according to claim 24 further comprising a contact plate including
8 circuitry configured to provide electrical connection with electrical
9 couplings of the chuck.

1 26. An electronic device workpiece processing apparatus
2 comprising:

3 a chuck including a surface, a plurality of electrical couplings
4 adjacent the surface, and a plurality of electrical interconnects configured
5 to connect with respective electrical couplings of the chuck and conduct
6 signals within the chuck;

7 an intermediate member having a first surface and a second
8 surface and the intermediate member including:

9 a plurality of electrical couplings adjacent the first surface
10 and configured to couple with respective electrical couplings of the
11 chuck;

12 a plurality of electrical couplings adjacent the second
13 surface; and

14 a plurality of electrical interconnects configured to electrically
15 connect the electrical couplings of the first surface with respective
16 electrical couplings of the second surface;

17 a calibration workpiece configured to couple with the second
18 surface of the intermediate member, the calibration workpiece including
19 a plurality of resistance temperature devices configured to generate
20 process signals, and a plurality of electrical connections configured to
21 electrically connect the resistance temperature devices with respective
22 electrical couplings of the second surface of the intermediate member;
23 and
24

1 a data gathering device coupled with the electrical interconnects
2 of the chuck and configured to receive the process signals from the
3 resistance temperature devices through the intermediate member and the
4 chuck.

5
6 27. A method of communicating signals within an electronic
7 device workpiece processing apparatus, the method comprising:

8 providing a workpiece holder adapted to couple with an electronic
9 device workpiece; and

10 communicating signals through the workpiece holder.
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12 28. The method according to claim 27 further comprising
13 coupling circuitry of an electronic device workpiece with circuitry of the
14 workpiece holder.

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16 29. The method according to claim 28 further comprising
17 breaking the coupled circuitry of the electronic device workpiece and
18 the circuitry of the workpiece holder.

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20 30. The method according to claim 27 further comprising
21 coupling an electronic device workpiece with the workpiece holder using
22 a vacuum.
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1 31. The method according to claim 27 further comprising
2 coupling a calibration workpiece and a production workpiece with the
3 workpiece holder.

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5 32. The method according to claim 27 further comprising
6 receiving an electronic device workpiece within the workpiece holder.

7
8 33. The method according to claim 27 further comprising
9 communicating the signal intermediate the workpiece holder and an
10 electronic device workpiece using an intermediate member.

11 a
12 34. The method according to claim 27 further comprising
13 receiving the signal within the workpiece holder from an electronic
14 device workpiece.

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16 35. The method according to claim 27 wherein the providing
17 comprises providing a chuck.

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19 36. The method according to claim 27 further comprising:
20 sensing a process condition of an electronic device workpiece; and
21 generating the signal responsive to the sensing.
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1 37. The method according to claim 36, wherein the sensing
2 comprises sensing temperature at a plurality of positions upon a surface
3 of the electronic device workpiece.

4
5 38. A method of communicating signals within an electronic
6 device workpiece processing apparatus, the method comprising:

7 providing a workpiece holder;

8 providing an electronic device workpiece including a sensor;

9 electrically coupling the sensor of the electronic device workpiece
10 with the workpiece holder;

11 sensing a condition using the sensor;

12 generating a signal using the sensor responsive to the sensing; and

13 conducting the signal through the workpiece holder following the
14 coupling.

15
16 39. The method according to claim 38 wherein the coupling
17 comprises coupling circuitry of the electronic device workpiece with
18 circuitry of the workpiece holder.

19
20 40. The method according to claim 38 further comprising
21 breaking the coupling of the sensor and the workpiece holder.

22
23 41. The method according to claim 38 further comprising
24 receiving the electronic device workpiece within the workpiece holder.

1 42. The method according to claim 38 wherein the coupling
2 comprises coupling using an intermediate member.

3
4 43. The method according to claim 38 wherein the providing a
5 workpiece holder comprises providing a chuck configured to receive an
6 electronic device workpiece.

7
8 44. The method according to claim 38 wherein the sensing
9 comprises sensing temperature.

10
11 45. A method of communicating signals within an electronic
12 device workpiece processing apparatus, the method comprising:
13 providing a workpiece holder having circuitry;
14 providing an electronic device workpiece having circuitry; and
15 communicating signals intermediate the circuitry of the electronic
16 device workpiece and the circuitry of the workpiece holder.

17
18 46. The method according to claim 45 further comprising
19 coupling the circuitry of the electronic device workpiece with the
20 circuitry of the workpiece holder.

21
22 47. The method according to claim 46 wherein the coupling
23 comprises coupling using an intermediate member.
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1 48. The method according to claim 46 further comprising
2 breaking the coupling of the circuitry of the electronic device workpiece
3 and the circuitry of the workpiece holder.
4

5 49. The method according to claim 45 wherein the providing a
6 workpiece holder comprises providing a chuck configured to receive an
7 electronic device workpiece.
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9 50. The method according to claim 45 further comprising
10 receiving the electronic device workpiece within the workpiece holder.
11

12 51. The method according to claim 45 further comprising:
13 sensing a process condition of the electronic device workpiece; and
14 generating the signal responsive to the sensing.
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16 52. The method according to claim 51 wherein the sensing
17 comprises sensing temperature at a plurality of positions upon a surface
18 of the electronic device workpiece.

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